



**Harris County Flood Control District
Harris County, Texas
Cooperating Technical Partners
Mapping Activity Statement**

Mapping Activity Statement No. 2 –Tropical Storm Allison Event Analysis

In accordance with the Cooperating Technical Partners (CTP) Memorandum of Agreement dated July 31, 2000, between Harris County Flood Control District (HCFCF) and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement 2 is as follows:

- 1. Objective and Scope:** The objective of this Mapping Activity is to collect and analyze meteorological, hydrologic, and hydraulic data associated with the Tropical Storm Allison flooding event. The impacts of the flooding will be documented and compared with historical flood events in Harris County, Texas.
- 2. Period of Performance:** This Mapping Activity will begin on September 11, 2001, and will be completed no later than September 11, 2002. This Mapping Activity may be terminated at the option of FEMA or HCFCF in accordance with the provisions of the July 31, 2000, CTP Memorandum of Agreement.
- 3. Funding/Cost-Sharing:**
- 4. Standards:** The following standards and documents are relevant to this Mapping Activity:
 - Detailed hydrologic and hydraulic analyses and floodplain mapping will follow the standards set forth in FEMA 37 and subsequent revisions, *Flood Insurance Study Guidelines and Specifications for Study Contractors* (January 1995), and Title 44 of the Code of Federal Regulations (CFR), Part 65. FEMA 37 is available at the FEMA Website at http://www.fema.gov/mit/tsd/EN_reg.htm. Title 44 of the CFR is available from the National Archives and Records Administration Website at www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=199944.
 - Computer models used for hydrologic and hydraulic analyses will meet the requirements of 44 CFR 65.6(a)(6) and be on FEMA's *Numerical Models Accepted by FEMA for NFIP Usage* (http://www.fema.gov/mit/tsd/EN_modl.htm).
 - Guidance on tropical cyclones and storm surge modeling has been established and documented in *Coastal Flooding Hurricane Storm Surge Model, Vols. 1, 2, and 3* (FEMA, August 1988).
 - Topographic mapping used to delineate coastal floodplains and hazard zones will be of adequate scale and topographic definition to provide reasonable accuracy. Planimetric features will be compatible with the base map (with respect to horizontal accuracy) selected by FEMA for digital FIRM production. Topographic mapping taken from aerial photogrammetry or surveys will comply with the requirements of Appendix 4 of FEMA 37. The selection of the topographic mapping source to be used will be coordinated with the FEMA Regional Project Officer prior to analysis and mapping.

- Hydrology for Harris County, Harris County Flood Control District, March 1988.

5. Products: HCFCF will make the following items available to the FEMA Regional Program Manager:

- Interim report.
- Calibration support data.
- Final report.

6. Schedule and Milestones:

All Schedules and Milestones shall be in accordance with the Project Master Schedule

Milestone 1 (Interim Report): Products for the first milestone that HCFCF will provide to the FEMA Regional Program Manager include:

- Comprehensive data collection including rainfall and supporting meteorological information; high water marks; peak discharge and hydrographs; and flood damage totals.
- Interim report documenting Tropical Storm Allison including meteorological, hydrological, and flood damages data.

Milestone 2 (Calibration Support Data): Products for the second milestone that HCFCF will provide to the FEMA Regional Program Manager include:

- Required rainfall data from Tropical Storm Allison and historical events.
- Discharge hydrograph data from Tropical Storm Allison and historical events.
- High-water mark data from Tropical Storm Allison and historical events.
- Summary of the HCFCF review of the recent rainfall frequency reports and recommendations as to the application of this information to the recovery efforts.

Milestone 3 (Final Report): The final report that HCFCF will provide to the FEMA Regional Project Officer will include the following:

- Calibration Support Data for each watershed placed.
- Frequency analysis – rainfall and discharge – such as L-moments and Log Pearson Type III.
- Discussion of Tropical Storm Allison flood damages.
- Comparison of Tropical Storm Allison with historical storms.
- Comparison of U.S. Geological Survey Water Resource Investigation Report 98-4044 and U.S. Weather Bureau Technical Paper 40 for Harris County.
- Brochure containing an executive summary to above report.

Final products will be made available in accordance with the Period of Performance described in Section 2 of this Mapping Activity Statement.

7. Certification: The following certifications apply to this Mapping Activity:

- Coastal hydrologic and/or hydraulic analyses and data will be certified by a Registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.6(f).

- Topographic information will be certified by a Registered Professional Engineer or Licensed Land Surveyor in accordance with 44 CFR 65.5(c).

8. Technical Assistance and Resources: HCFCFCD may obtain copies of FEMA-issued Letters of Map Change, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from the FEMA Flood Map Production Coordination Contractor (MCC). The MCC may be contacted at 1-877 FEMA MAP (1-877-336-2627). General technical and programmatic information, including *The Zone A Manual: Managing Floodplain Development in Approximate Zone A Areas* (FEMA 265), the Quick-2 computer program, and the MT-2 forms, can be downloaded from the FEMA Flood Hazard Mapping Website (www.fema.gov/mit/tsd/). Specific technical and programmatic support may be provided through the FEMA MCC; such assistance should be requested through the FEMA Regional Program Manager specified in Section 12 of this Mapping Activity Statement.

9. Contractors:

PBS&J
1880 S. Dairy Ashford St., Suite 300
Houston, TX 77077-4760;

LJA Engineering & Surveying, Inc.
2929 Briarpark Drive, Suite 600
Houston, Texas 77042-3703

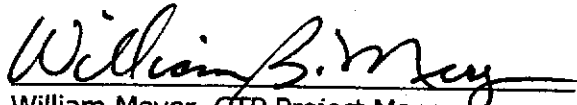
Procurement of subcontractors using Federal funds provided as part of this Mapping Activity will comply with the requirements of 44 CFR 13.36.

10. Quality Assurance/Quality Control (QA/QC) Procedures: HCFCFCD will undertake internal QA/QC reviews to ensure that the products described under Section 5 of this Mapping Activity Statement conform with the standards cited under Section 4 of this Mapping Activity Statement. Additionally, an independent QA/QC review for compliance with these standards will be undertaken by Dodson and Associates, Inc. The QA/QC procedures outlined in Chapter 10 of *Flood Insurance Study Guidelines and Specifications for Study Contractors* (FEMA 37) should be followed by HCFCFCD during the development of the hydrologic analyses.

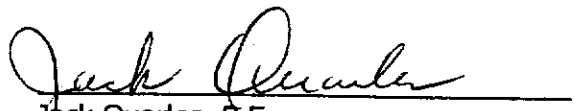
11. Reporting: Reporting requirements will be in accordance with Agreement Articles V & VI.

12. Points of Contact: The FEMA Regional Program Manager is Jack Quarles, P.E., and the CTP Project Manager is William Meyer or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. If it is necessary, the assistance of FEMA's MCC should be requested through the FEMA Program Manager Jack Quarles, P.E.

Each party has caused this Mapping Activity Statement to be executed by its duly authorized representative.


William Meyer, CTP Project Manager
Harris County Flood Control District

9.10.01
Date


Jack Quarles, P.E.
Region 6 CTP Program Manager
Federal Emergency Management Agency

9-14-01
Date

August 22, 2001

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